

ABSTRACT

A large-capacity optical router is disclosed that exchanges data traffic such as IP packets, Ethernet frames, etc., at high speed in units of optical frames. The large-capacity optical router uses an electric buffer including input ports, output ports, an add port for inputting data received from a lower IP router, a drop port for outputting data to the lower IP router, a wavelength division demultiplexing section for wavelength-division-demultiplexing wavelength signals input through the input ports and the add port, an input interface section for converting optical frames from the wavelength division demultiplexing section into electric signals, and an optical switch for performing a high-speed switching of the optical frames from the input interface section. The large-capacity optical router also includes an output interface section for processing the optical frames output from the optical switch, a wavelength division multiplexing section for wavelength-division-multiplexing outputs of the output interface section and transmitting the multiplexed outputs to another large-capacity optical router, a drop interface section for processing the optical frames from the wavelength division multiplexer to the lower IP router, a header processing section for recognizing header information, an optical switch control section for controlling a connection state of the optical switch, a header reinserting section for reinserting headers into outputs of the optical router, and an edge traffic aggregator including of an ingress part for converting IP packets input from the lower IP router into optical frames and an egress part for converting the optical frames into IP packets and transmitting the converted packets to the IP router.